ITEMS OF INTEREST.

VOL. VI. PHILADELPHIA, MARCH, 1884. No. 3.

Shots from the Profession.

IS INORGANIC MATTER, USED AS FOOD, ASSIMILATED.

BY J. F. SANBORN, D.D.S., TABOR, IOWA.

Dr. Taylor, in the October number of the ITEMS, takes exceptions to the views expressed in the September number, under the above caption, written in response to the request of Dr. Ottofy.

We have in our library works on Physiology by Richerand, Oliver, Payne's Institutes of Medicine, or the philosophy of vital action, Dunglison in two volumes, Carpenter, Dalton, Foster and Flint, and Biology by Beale, Cook, and Huxley, so that we are fully aware that doctors sometimes do not agree on Physiological subjects. By comparing the above named authors, we find that the later editions are far in advance of the older, and further, the latest authors are not up to the teachings of the lectures as we hear them in our Medical Colleges. So that if our views do not coincide with those of Dr. Taylor, the readers of the ITEMS need not be surprised.

The views expressed in the September number were our conclusions, rather than the reasons for such deductions. Water is an inorganic fluid. Its use in the animal economy is abundant and indispensible as a solvent of the solids used as food, to render them in condition for absorption, and circulation; and as plasma for assimilation by the action of the bioplasts into formed matter of tissues; and again on disintegration of tissue, water assists in the removal of the debris. So important is water for the use, in both the vegetable and animal kingdom, that neither could live without it. And further, no fluid, simple or compound, can take its place. Yet it is not assimilated as food.

Doubtless Dr. Ottofy, had Sodium Chloride (Na. Cl.) in view when he proposed this subject for our consideration.

Dr. Taylor does not choose "to take any man's *dictum* as proof of such assertions." We therefore select some Scientific Physiological principles, as taught by Prof. Joseph Le Conte, under the heading of Correlation of Vital and Physical Forces. Also some by Prof. J. K.

Macomber, Professor of Physics in the Agricultural College of Iowa. According to Prof. Le Conte, "There are four planes of existence, whose relations may well be expressed by writing them one above the other as follows:

"Fourth.—Animal Kingdom.

"Third.—Vegetable Kingdom.

"Second.—Mineral Kingdom.

"First.—Elements.

"And there is a peculiar force whose special function is to move matter from one plane to the one above, and also to execute all movements on that plane.

"It is the province of chemical force to raise matter from plane 1 to plane 2, as well as to preside over all movements on plane 2. Vegetable life force lifts matter from plane 2 to 3, and executes all changes which takes place on plane 3; while it is the sole province of Animal life force to elevate matter from plane 3 to 4, and also to perform all evolutions on that plane. In raising from the second to the highest plane a process of building up is going on, and force is consumed in performing this work of tissue building. In falling back from 4 to 3, and from 3 to 2, this force previously consumed, is set free.

"Notice, matter cannot, at one bound, rise from plane 1 to 3, nor from plane 2 to 4, (as must be the case if Sodium Chloride can be assimilated). There is no single force capable of lifting matter at once through these stages. Plants cannot feed on elements, neither can animals subsist on minerals.

"As the foods of plants then, we have carbonic acid, (CO_2.) water (H_2, O,) and ammonia (N_3, H,) with a little sulphur, phosphorous, iron, and other elements, (as Na Cl,) in traces which we may neglect in this argument as unimportant. Our first work of tissue building takes place in the green leaf under the influence of sunlight. The presence of chlorophyl and living protoplasm in the leaf seems to be absolutely necessary. Sunlight, in the presence of this protoplasm seems to possess the power of shaking asunder the extremely stable compounds of water and carbonic dioxide; the excess of oxygen and carbonic acid is thrown off, and the remainder goes to make up plant-tissue.

"The force needed to build the tissue would be present, because all the elements in a nascent state have a powerful tendency to combine, probably because the forces which previously linked them are then free. Here, then, we have light physical force, disappearing as light, and reappearing as the potential energy of organic tissue or vegetable life-force.

"The light is used up in performing the work of decomposition; it appears as nascent chemical energy, and this again is applied to the work of forming organic matter, again to reappear as vital force in the tissues formed.

"As sun-heat falling upon water disappears as heat, to reappear as mechanical power, raising the water into the clouds, so sunlight falling on green leaves disappears as light, to reappear as vital force, lifting matter from the mineral to the organic kingdom.

"Herbivorous animals subsist on plants, carnivorous animals on those which are herbivorous. Plants have been raised to a highly organized state by the action of sunlight. They are, so to speak, delicately poised upon a pinnacle, ready to fall at any moment and have their potential energy become kinitic.

"In the bodies of animals, these materials on plane 3 are, a portion of them, decomposed for the production of heat and mechanical energy; another portion produces force to raise matter from 3 up to 4. We must not forget that in a healthy animal body waste and repair are both going on continually. Now this waste is of itself the source of a vast amount of energy. Highly organized animal matter, in falling down to carbonic acid and water, and urea, sets free an immense quantity of force.

"A portion goes to produce animal heat, still more, muscular force, and perhaps some of it is utilized in the work of building tissue. The albuminoids enter into the composition of tissues, or, by their decomposition they may produce heat and force, both of which are essential to life. A starving animal lives upon the force generated from the decay of its own tissue, and, in all cases, vital force, exhibited in the animal body, seems to arise from chemical decomposition. It is therefore intimately connected and correlated with the force of chemical affinity."

Such is an outline of the nature of vital force, as given by Prof. Le Conte. "Helmholtz, Mayer, Liebig, Carpenter and Payne, all unite in the belief that the forces of organized beings emanate from the same great force-center as do other energies of nature. All food is matter in a state of unstable equilibrium: Plants are collectors of physical force while animals are consumers. Solar radiation is locked up by the vegetable kingdom in the form of chemical tensions, eaten by the animal, these tensions appear as mechanical energies. The steps in the transmutation are therefore: solar radiation, physical force; chemical tension in plants, mechanical energy or vital force in the animal body." These last few lines are from Prof. Macomber's work on Matter and Force. Flint says that the amount of Chloride of Sodium discharged from the body is but little less than the amount used, and is discharged in all the excretions, being thrown off in the urine, fæces, mucus and perspiration. The so-called inorganic elements found assimilated in the tissues of the body, are derived from the constituents of the food eaten and not from the salt used as a condiment. Of the Nitrogenous, Amylaceous, and Carbo-Hydrates used as foods, if

properly digested and assimilated, when removed as excrementitious matter, are never in the same chemical combinations as when received as food, and in the disintegration, force has been evolved for the use of the vital economy. Sodium Chloride is Sodium Chloride when eaten, and Sodium Chloride when ejected, wherein then has it contributed to the vital forces? Wherein is the proof that it has been assimilated directly from the Mineral Kingdom, and changed from plane 2 of Le Conte, to the Animal Kingdom, or plane 4?

That the idea that it can be done is very prevalent, even among physiologists, we do not deny; but advanced physiology, founded upon the principles of physics, or the relationship between matter and force, and the teachings of biology, show beyond a shadow of a doubt that salt, or any inorganic compound, is never assimilated. The idea tha at Silicate of Lime, as the old plastering from a house, and fed to hens, will be used by them for the elaboration of the egg shell, is no longer believed to be in accordance with the facts of the case. The uncivilized Indians in their original barbarism never used salt, and better specimens of physical development are seldom seen among the enlightened users of it. Mr. Wm. Bryant, in 1809, went with a company of 120 men under the U. S. Government, beyond the Rocky Mountains, to conduct to their far-western homes the Indian Chiefs who were brought to the seat of government by Lewis and Clark. From the time their supplies were exhausted, for two years that they were among the Indians, the company subsisted as did the Indians, on meat, fruit and roots, for food, and water for drink; no alcoholic liquors, narcotic elements, or salt. When they left the States they were more or less disordered in their health. They were all restored to health, and became like the Indians among whom they dwelt, remarkably robust and active. The Arabs give their horses "good corn and beans," but never salt, and they have the finest horses in the world.

We are credibly informed by a gentleman who has been there, that the ranchmen of Colorado do not salt their horses or cattle; in fact, *his* horses would not eat it. We once had a horse that was not salted for a year, which was in good condition and performed his labors as well as any horse we ever owned.

That herbivorous animals, at the season of the year they are afflicted with grubs, bots, and like parisitical intestinal vermin, do seek the Salt Springs and Salt Licks as a medicine, to cure themselves, there is no doubt, and use it "For this, and nothing more."

Every Scientific author we have consulted, when treating of the relationship between Matter and Force, and the change of Matter from one plane to another, agrees with Prof. Le Conte, that animal life-force cannot raise Matter from plane 2 to plane 4. So that we claim that from a scientific standpoint, inorganic matter used as food is not assimilated.

DENTITION.

BY C. S. CHITTENDEN, HAMILTON, C. W.

Nature seems to know what is best for us, and to attend to our wants without our asking. When the child is first ushered into being, we find the mouth exactly fitted for the kind of nourishment which nature has provided for it. Its delicate stomach requires no solid food, nor could it digest it were it fed on such, until nature has prepared its stomach for it; but so soon as the stomach is prepared to digest solid food, we find kind nature attending to its wants, by sending out the teeth for the purpose of masticating it, thus allowing each particle to become completely saturated with the saliva before it is introduced into the stomach.

A healthy child at its third or fourth month has all the elements of growth, as its increase in size and its hardened bones give full proof. Its muscles are large, firm and strong, showing plainly that there has been no lack in the supply of the secretions which have been sent to them. The bones, too, by their size and firmness, show us that nature has been busy with them at the same time, depositing the salts of lime, magnesia, soda, etc., upon them; and so on throughout the whole system, increasing the size and strength of those parts which the child uses most. As it gets larger, its stomach begins to feel the necessity of being supplied with hardier food—food which must be saturated with the saliva before it can be digested, and the child seems constantly inclined to bite whatever it can get into its mouth.

Soon after this we begin to see indications of the growth of the teeth, showing that nature has directed those salts of which the teeth are composed, to be deposited little by little on them, until they make their appearance through the gums, and continues the process till the fangs are perfect. But do we know how this is done? Do we know any more about this than we do of the manner in which carbon enters into the formation of vegetable life?

We *think* we know that the bone material is taken from the food, and carried to the secretive organs and deposited in or on the bones. We know that some kinds of food contain a much greater quantity of bone material than others, and that it is a pretty well established fact the teeth of those who for generations have lived almost exclusively on coarse food, are better, whiter and harder, and that they last much longer than the teeth of those who fare sumptuously every day.

For the last twelve years, my practice, to a great extent, has been among the Scotch, whose staple article of diet, at least for breakfast, is unbolted oatmeal. I have found that the teeth of children brought up on this food are erupted with very little difficulty, are less liable to decay in childhood, and from the fact that they are retained in the mouth

till the absorbents have carried the fangs away, the second set are more regular and more fully developed than the teeth of the natives of this country. Are they not indebted to a greater extent for their fine teeth to their manner of living? Now, if such be the case, ought we not to use our endeavors to induce parents to give their children such food as will tend most to bring about the desired result? Shall we not have earned the heartiest thanks of the rising generation?

But to my mind there is another great source of mischief, which is not sufficiently regarded. I mean the practice of saturating the system with outlandish doses of mercurial medicines. We are all called daily to attend to the teeth of those who have been "murdered alive" with this drug. We know that mercury produces "great rottenness of the bones," and can we expect the offspring of parents whose whole systems are filled with this dreadful drug (I mean dreadful because dreadfully used), to be healthy? and if not healthy, how can we look for anything better in shape of teeth than the black, unsightly, disgusting apparatuses which we see from day to day?

But as our specialty is more for the remedying of existing defects than preventing them, we must look for the best means for alleviating existing suffering. For this purpose I have found one or two remedies sufficient for most cases. Of course, I would not advise the *mere dentist* to attempt to treat difficult cases; but, as we generally meet them, I think we may do so with perfect safety. For instance, we are often called upon to attend to children whose teeth are slow in coming through the gums; with relaxed bowels; great nervousness, etc. For such cases I have found calcaria carbonica, in what Homœopaths call the third potency, given about once a day, for a short time, to be a most excellent remedy—a remedy which has done, is doing, and will do more good than any other with which I am acquainted. Lime water may often be used with good success in cases of slow dentition, by those people who are afraid of being benefited by Homœopathy.

With regard to the extraction of the deciduous teeth, it is difficult to conceive the mischief that is done by the perambulating doctors, in teaching parents to have the deciduous teeth extracted, to allow the permanent ones to come in regularly. It is often impossible for me to convince mothers that it will not be best to extract these teeth. The general impression seems to be that the neglecting to have the deciduous teeth extracted some time before the permanent ones should make their appearance, is the sole cause of irregularity.

As I said before, nature seems to know what is best for us, and to attend to our wants without our asking; she will, if allowed to take her course, throw out the deciduous teeth at the proper time, in almost every instance.

My practice is never to extract a deciduous tooth unless there is an actual necessity for it, and I never consider that there is a necessity unless the permanent tooth is about making its appearance, or there is disease, which renders the tooth too painful to be retained in the mouth.

DENTAL FEES.

[Extract from an Essay read before the Michigan Dental Association.]

BY DR. W. CAHOON, DETROIT.

In this fast age, when dollars and cents are needed to place men in positions in society, it seems right that the dentist should consider well the matter of fees in all its bearings. Men may talk of philanthropy and generosity. It sounds all well; but the maxim is still good, to be just before being generous. Not that a man should not be generous, but that he be allowed to bestow his beneficence as he likes, and not be compelled, because he has chosen a profession, to compromise with every one with whom he has to do. The dentist who is fully prepared, in his profession, to do all that the age and times require of him, has not come to that point without an expenditure of money and labor that none but he who has experienced it can estimate; therefore the dentist should be allowed to charge for his services in proportion to the amount of service rendered, there being such a difference in cases and operations performed, that it seems almost impossible to have any set fees to guide in an estimate until the work is done. Although the patient may inquire beforehand how much will be the charge, let it be distinctly understood that the charges will be made in proportion to the character of the work, the time occupied, and the amount af material used, as no other method can enable the operator to do justice to his patients and himself.

And then, in his estimate of services, let him be conscientious and honorable; and, if he knows he has rendered good service, let him charge a good fee, and in that way he will not only gain the respect and confidence of his patients, but drive the wolf from his own door. Besides, operations performed under considerations like these, will certainly be more valuable to all parties concerned, than if done under a stipulated fee beforehand; as those wanting anything done to their teeth want it done as well as possible, and, in nine cases out of ten are willing to pay anything within the bounds of reason.

It is true, there will be a great many cases presented in which there can be an estimate made; but to make it a general rule, would prove ruinous. The dentist, like all other men, is ambitious to make a respectable appearance in society, and to give his family the benefits of an education, and to provide for a rainy day; therefore, he must charge more for his services than the artisan, who can manufacture his wares in large quantities, and throw them into the market for sale, while the dentist has to do his own work, and wait until he shall have an order even to do that.

The price charged, however high it may be, by a dentist who is known to do his work well, gives better satisfaction than though he was a second or third rate operator, and charged accordingly.

AFFABILITY, URBANITY, TONE.

BY C. C. DILLS, D.D.S.

"A gentleman of excellent breeding and admirable discourse."—*Shakspeare.*

Fuller says that "William, Earl of Nassau, won a subject from the King of Spain, every time he put off his hat." More surely than the truth of this assertion, would be the truth of the assertion that a dentist wins a patient every time he puts off a courteous act. The maxim of courts is, that manner is power; and we see the fact illustrated on all hands, however subtly. No one seriously claims exemption from the influence. An affable, urbane, high-toned appeal wins us, even though the cause be doubtful. Thus do manners oft-times prove a fortune, and may well be considered prominent among the elements of success with the dentist.

But how to acquire them? how to direct our efforts? These are reasonable questions. First, then, let the man, fully imbued with the importance of this *finish* to his character, next feel that "there is no excellence without great labor." Let him see the importance of thoroughness, deep-seatedness,—being assured that only as he approximates the *genuine*, is he secure; and that nothing but royal blood possessed will in any way shorten the road. Let him know that by his fruits he shall be known,—and how correctly!

"Beware you don't laugh," said a wise mother, "for then you show all your faults." But this mother referred to the *teeth*, and spoke when they were more plenty than now. Yet I tell you, a man no less shows his faults in these days, in opening his mouth, though he shows no teeth; so also does he in the more subtle language of his body. For weal or for woe, does his every word, his every act, tell on him. Thus significant are manners.

We may offer palliation for ill discourse, and not believe in pathognomy; but we yield our homage to the polished speaker, and our admiration to the elegant demeanor, and nine cases out of ten our suffrage accordingly, even at the protest of reserved merit.

Thus inseparable are the man and the manner; and thus important the thoroughness spoken of. For the manner can only be healthy when it proceeds from the character; or the character—man—must be sound to produce healthy manners.

Fortunately for us, we can mould our own character, and if our Adamic blood has run low, we have but to add culture, till in the end our factitious, and a more native manner, are indistinguishable; and certainly the former is as commendable as the latter.

How desirable is this depth and purity of manners!—this culture, education, and elevation of our natures, by thought, study, and the fine arts! How it redeems life! and makes friendship precious, as well as patience profitable!

Now if I can hope to have given a genuine impulse to the many vague desires which ever and anon seize us all, to be accomplished!—to ascend higher the elysian ladder of attainments, and enjoy the increased emoluments thereof; and have disabused the mind of the indolent or timid student or practitioner of the idea that nature gives for naught, or will tolerate a "wicked and slothful servant," or superficiality; and have shown that "every man is the architect of his own fortune,"—can carry this culture of manners to whatever point of success he chooses—I say if sentiments akin to these may have been produced already by my reflections, I will be excused from a more specific consideration of the triple—affability, polished discourse; urbanity, polished demeanor; and tone, serving to brace, and give effect and dignity to it all—and trust the careful student to appreciate the importance of his parts, in his study of a subject so fraught with pleasure and profit as a whole.—*Dental Register.*

AN OVER SUPPLY OF DENTISTS.

BY DR. HENRY S. CHASE, ST. LOUIS.

The demand for dental services was never so great as during the last fifteen years. With the discovery of cohesive gold, and its application in dentistry, the plugging of teeth became an operation consuming from three to six times the labor that had formerly been bestowed upon it—when soft cylinders and soft rope were used. The advent of contour operations also increased the necessity for the consumption of more time in the performance of this artistic work. About four cavities per day has been considered a good day's work, on the average, for a first class operator. Prices per cavity were increased from three to six fold, in order to remunerate the operator. This condition of things stimulated young men to enter what appeared so lucrative a profession, until the profession may be considered full. In all of our large cities there is undoubtedly a surplus of dentists. In the city of St. Louis there are even more good operators than can find full employment for their time. Of course, there are not enough first class operators in any city; a higher standard of the profession at large is desirable; but these inferior men will always get more or less practice, and generally enough to live upon at least; and what they do get is so much taken from those more deserving and better skilled.

In the past, and when operations were more defective, and consequently less permanent, the manufacture of *artificial substitutes* formed a considerable portion of the "practice" of all dentists. The dissemination of true principles of dental hygiene among the people, together with the desirable results of the better preservation of the teeth by

superior operations, have had the effect to reduce this branch of dentistry to very small consideration and diminished income with the general practitioner, and especially with those who have proved themselves superior operators.

Dental hygiene is becoming better and better understood by the people, and the consequence is improved *natural* dentures. The future will increase this desirable condition of things. Prophylactic measures are now more largely made use of by dentists, for the *prevention of decay*, than formerly, and *this* practice will be wonderfully augmented in the near future. The improvements in dental machinery have already *shortened* operations very much, and will continue to do so. The filling of teeth, to-day, does not require more than two-thirds the time that it did five years ago. Automatic malleting has materially reduced the time necessary for condensing a gold plug. The advent of superior plastic material for filling posterior and difficult cavities, will have a very great effect in shortening the average time of plugging a hundred teeth.

All these facts it is well for the profession to ponder carefully. And before they encourage a young man to enter a calling which is already full, they should set these facts before him. And it is high time that young men should be *selected* to take the vacant places made by the deaths that occur; selected on account of their suitable education, natural talents, and character. Dental colleges need better *stuff*, out of which to manufacture first class professional men, than has been sent to them.

Whatever the number of dental practitioners may be, to-day, in the United States, whether it is fifteen or twenty thousand, there will be no need of a greater number twenty years hence, even though the population of this country is doubled by that time.

Every dentist knows that his profession is not a "money making" one. Few, very few, make more than a comfortable living. The *majority* could easily perform double the amount of professional labor, if they had it to do.

We have, as a profession, been rapidly rushing on in the path of progress, and I hope will continue to do so, but this very progress will result in diminishing each one's "bread and butter," unless we occasionally take a thought in regard to the law of demand and supply.—*Missouri Dental Journal.*

"A dentist, love, makes teeth of bone
For those whom fate has left without;
And finds provision for his own
By pulling other people's out."—*Anon.*

AIR CHAMBERS AGAIN.

In the last ITEMS OF INTEREST, Dr. Churchman, of Portland, Oregon, suggests an improvement in the formation of air chambers in dental plates.

1. I think all air chambers are hurtful and cruel, because the mucous membrane drawn into them is in ninety-nine cases out of the hundred inflamed by the process; and sometimes very much inflamed, especially where the chamber is deep and surrounded by a high wall.

It was published some little while since in one of our dental journals that this chamber in one case produced polypus. What would you think if your shoemaker, to give you a tight fit, knew from former experience that the boot would inflame your foot in a certain place? Would you not say he was cruel, and quit him for another?

As to these walls around the chambers—how many times have you or your patient had to trim them on account of the punishment they inflicted?

2. The thing is unphilosophical, because no vacuum is produced by it as claimed. The pull or resistance of the membrane is not so great as the atmospheric pressure, and consequently the chamber is soon filled with the membrane if the air is exhausted from it; and this membrane is pulling all the time to return to its normal condition—hence for a little while the plate feels tighter to the patients, because they feel this pull. But in a few days or weeks this pull is not felt, because the veins in this part of the membrane have become so much weakened, congested, enlarged and inflamed as to yield, and the pull is not greater here than under other parts of the plate, and the supposed vacuum is gone.

3. All persons who wear artificial dentures know that the plate is apt to get loose in eating. Then it is only pressed up by the first bite afterwards, and the air pressed out, except in the chamber, which is full, or partly so. For while the mouth is full of food, the wearer does not suck up the plate; if he attempts this he would draw as much crumbs and other food under, as air out from under. This much atmospheric pressure is therefore taken off and lost to the plate, whereas if there were no chamber, the air would all be pressed out in the next bite. Hence, reason says it should not be there.

4. The fact that crumbs get under the plate while eating is proof positive that the air does too, and therefore this chamber is full of air and crumbs nearly all the time of eating. There is scarcely an exception to the rule, and the deeper the chamber the more it lessens the atmospheric pressure.

I have worn artificial dentures for many years, and have experimented a great deal to get the most perfect fit, and I know from experience as well as observation that chambers never help, but make plates fit worse.

Now for the *better plan* that I have practised for the last ten or twelve years. I take the upper impression in wax and harden it in cold water, then trim off as far back on the palatine impression as the plate is allowed to go, and let it go back as far as will be pleasant. Next, I cut a large chamber about one-sixteenth of an inch deep, and so as to cover the whole of the arch, except to within the eighth of an inch of the center of the gum all around (except in front—here I allow a little more margin, and also at the back part). I have holes in my plates, and make holes through the wax to let the surplus plaster escape. I now use tolerably thin plaster and press it up hard, say at least ten pounds pressure, especially at the back part, and continue the pressure until the plaster is hard enough to take out.

In this way we will have the pressure of the plate where we want it—on the palate and on the gums, and hence the plate will not rock or ride on the center in mastication. This plan will not produce mechanical inflammation. I am now wearing a gold plate that is decidedly the tightest fit I ever had, made in this way with a round groove cut in the plaster cast about the eighth of an inch in diameter across the back palatine wall. This made the parts a little sore at first, but soon recovered of that, and the membrane now covers the edge of the plate. I. N. HEDGEN, Woodland, Cal.

AN IMPORTANT SUGGESTION.

"The American Dental Association is receiving some severe cuts through the press. We hope the matter will not go so far as to create a division and the formation of a new society. We have now quite enough. There is one organization, however, which we think should be strengthened from all quarters, namely, the National. How would it do to make this association emphatically *the* association of the United States, with its permanent lodging in Washington, and there to create a National Dental Museum, which would add much in interest and instruction? We make the motion. Who will second it?"

We gladly give space to the above from the *Southern Dental Journal.* The suggestion "to create a National Dental Museum" is a good one, and ought, and will, we believe, meet the endorsement of every member of the profession. There is certainly ample material from which to start such a movement, and we know of no one better qualified to set the ball in motion and guard its interests than the "National Dental Association." We second the motion, Brother Catching.—Editorial in *Missouri Dental Journal.*

The Transactions of the New York Dental Society for 1882 and '83 is received with thanks. It has been compiled with great care, and contains much valuable dental literature.

CARE OF THE MOUTH AND TEETH IN INFANCY AND CHILDHOOD.

BY DR. CHARLES MOHR.

In the thousands of mouths I have looked into in the course of my practice, it has only once been my fortune to find an adult with a set of thirty-two perfect teeth. But we might see many perfect sets of teeth if parents took the same care with the teeth of their infants and children which they take with their own teeth later in life. To be effectual this care should begin in earliest infancy and never after be intermitted.

The teeth are in process of formation long before the birth of the child. Unless the mouth is washed frequently the uncleanness will affect digestion, and diminish the amount of nutriment needed for the perfecting of the teeth when they are cutting through the gums. Digestion begins in the mouth, not in the stomach. It is a fatal mistake to suppose that, because the first twenty teeth must soon be lost, it is not worth while to keep them clean. In the treatment of these depends very largely the value of the permanent set, and also, in many cases, the shape of the jaw. When the first tooth decays, toothache ensues. The tooth is drawn..

"It is only a first, anyhow; will soon be replaced," thinks the mother; but, in consequence of the premature extraction of the teeth, the soft, porous alveolas, in which their roots were imbedded, contracts, and when the second set begin to claim their places, there is not room enough for all, and they crowd and jostle each other and stand in all ways in the attempt to get room. Then some must be removed, and often the whole shape of the face is distorted for life. For this reason it is always better to *fill* the first teeth, when possible, instead of removing them. For this the cheaper filling is generally better than gold.

The four teeth called sixth-year molars, because they are generally cut at that age, are very often mistaken for first teeth. As they have a tendency to decay early, it is well to have every child's teeth examined by a dentist at this period, and if, as is often the case, the enamel is found imperfect, have them attended to at once. The successive coming of the different sets of teeth is an indication of the kinds of food the child is able to digest; when it has none, it is ruinous to give anything but milk, except water. This rule is meant only for children in health.

The nerves which supply the teeth affect other parts of the body. Defective teeth induce earache, headache, neuralgia, sore eyes, cough, choking spells, convulsions, and other difficulties; children have suffered for months, and even years, with troubles which were removed by the drawing or filling of certain teeth. Don't use a hard brush, but one with uneven bristles

EXPOSED PULP—IMPORTANCE OF DIAGNOSIS.

BY DR. L. C. INGERSOLL, KEOKUK, IOWA.

I cannot forbear to express my great surprise that the profession have so generally ignored the necessity of diagnosis as a preliminary step to treatment of an exposed pulp. In the highest representative bodies of the profession as well as in those of lower standing and authority, you may listen to discussions, lengthy and learned, concerning treatment of exposed pulp, and hear almost nothing said of the varying conditions of the pulp induced by the exposure, and needing treatment according to the varying pathological conditions.

You may listen to long essays on "Exposed Pulp," describing treatment, without hearing scarcely a word about any treatment peculiar to this or that condition of the pulp. You may read lengthy articles in the journals all about exposure, without even naming any other abnormal condition than exposure, or even proposing to treat any other condition than exposure.

How are we to interpret such silence? Do the profession esteem diagnosis of the pulp a matter of no consequence? Is the same treatment adapted to all conditions? Do the words "exposed pulp" have a meaning so comprehensive as to cover all pathological changes through which the pulp may pass from normality to complete dissolution? The glossary of pathology contains no such form of words as "exposed pulp." The term "exposure" implies no form of disease and recognizes no pathological conditions of the pulp.

The word conveys no other definite idea than a mere mechanical opening and does not necessitate or force upon the mind any idea of pathology. Yet this word has come into general use not to express pathological conditions, but to cover up the worst forms of disease. The word itself caps the climax of all deceit concerning the pulp. It is a mind-capper, a thought-capper, a knowledge-capper. Is it any wonder then, that, led by the mere mechanical idea which the word expresses, the profession should so generally have adopted the practice of a simple mechanical opening? Is it any wonder that a mechanical capping should come to be considered the *summun bonum* of pulp therapeutics?

Mechanics could play a brilliant part with anatomy, if pathology could be put under bonds to keep the peace. It could not only cap the opening into the pulp chambers, but could splice the pulp and lengthen out a nerve with gutta percha. But pathology will *not* keep the peace under such circumstances.—*Extract of address before the Iowa Society.*

It is by thoroughly doing the minutia of our work that makes the aggregate perfect.

LETTERS FROM A MOTHER TO A MOTHER ON THE FORMATION, GROWTH AND CARE OF THE TEETH.

BY MRS. M. W. J.

LETTER VI.—OTHER CHEMICAL ELEMENTS.

We have hitherto looked only to *diet* for a supply of lime-salts.

If you are *boarding*, or, from any other circumstances, cannot control your diet, or if, from long-established habits or constitutional disease, your system fails to assimilate the lime-salts as presented in this form, and your teeth grow sensitive, ache and decay, from the drain upon them in your present condition, you may be obliged to resort to the doctor and the drug store for the same thing in less palatable form.

There are various preparations of the inorganic lime-salts, designed to effect the same results and supplement the above *regime*, and which have been found very beneficial when the stomach is too weak or the appetite too poor to render *foods* available.

Dr. Hava's "Cod-liver Oil with Soluble Phosphate of Lime," and his "Tonic Wine with Phosphate of Lime," are recommended by physicians as "very beneficial in those cases where delicate women need to nourish their offspring during nine consecutive months, and where a lack of phosphates is wanting to accomplish this most important part of nature's work."

Dr. Abbott, of New York, says he finds, where children have a repugnance to Graham bread, oatmeal, etc., (which will, however, seldom be the case if the Graham flour before mentioned is properly prepared, and if good oatmeal be given with plenty of milk) that the "Syrup of Lacto-phosphate of Lime" is to be recommended. He says: "I have given this, even to families of several children, sometimes at intervals for years. It is the simplest form for easy assimilation, and the children will take it just as readily as they will lemonade. I have had mothers under my care, from seven months before the birth of their children, and administered the lacto-phosphate for weeks at a time, for two or three months. I have had hundreds of cases in which the remedy has been used with fair results."

Another eminent medical writer says:

"During pregnancy many women suffer from caries of the teeth and dental neuralgia. The calcareous salts required for the development of the fœtal skeleton must be supplied by means of an increased ingestion of these materials on the part of the mother. In default of this augmented consumption, the nutrition of the maternal bony tissues is affected, and dental caries result. Many pregnant women have a morbid appetite for calcareous and other mineral substances. Preparations of calcium, especially the phosphates and hypo-phosphates, should, in view of the facts mentioned, be administered to *enciente* females suffering from the above dental troubles."

Of course, however, you will consult both your dentist and your physician before resorting to these medicinal preparations.

In this consideration of the elements of tooth substance, we have thus far devoted our attention exclusively to *calcium*, not only because it constitutes by far the largest portion of tooth substance, the remaining elements bearing only a very small proportion to the whole, but also because they are found in meat, milk, eggs, and other such common articles of diet, that you are scarcely liable to fail in receiving an adequate supply.

The remaining inorganic elements of tooth substance are principally *magnesia* and *soda*, both of which are found in milk and eggs; the latter we obtain abundantly also from common salt—the chloride of sodium.

Magnesia and chlorine are also constituents of the blood.

The other chemical elements found in the human system, and which you supply to your babe in your food, are:

Iron, an important constituent of the blood, and found in nearly all ordinary articles of food.

Sulphur, a constituent of the flesh, hair and bones, and found in meat, eggs and nuts.

Phosphorus, an element of the nerves and brain, and found in the bran of wheat, the yellow of eggs, in sugar, in potatoes, in fish, and in brains as used for food.

Carbon, being an essential element of every living tissue, and therefore a necessary element in food, is found in almost every known article of diet. This supply of carbon is an essential factor in the support of animal heat.

Hydrogen and *oxygen* as combined in water, furnish three-fourths of the weight of the human body.

Nitrogen is another essential element; the various organs of the body and the blood containing at least 17 per cent.

Starch, sugar, gum and butter contain no nitrogen, and therefore cannot, either alone or combined, long sustain life. Arrow-root, corn-starch, and other similar starch preparations so often used for infant's food make only fat, and can only really nourish the child when they are prepared with milk. It is on record that an English mother, some years ago, was sentenced to death for *the murder of her child*, because, in spite of the warnings of her physician, she persisted in giving it only that starchy form of food, and the child died of inanition. I myself nearly lost one of my own children through ignorance on this point. The babe was reduced to such a point of inanition that it was given up as hopeless by physicians, and was only cured by the persistent use of bran baths, and bran poultices, from which nourishment was absorbed by the pores of the skin.

Again, peas and beans, containing a large amount of carbon, readily satisfy the appetite, but containing no phosphates, they add nothing to the strength of the body.

Let your diet, therefore, be selected with reference to these principles.

The body being made up of many elements, differing in chemical properties, textures which are so chemically different require different aliments for their nourishment; a considerable variety of food being absolutely necessary for the preservation of health and life.

As the same nutritive element is usually found in different articles of food, often both animal and vegetable, (with the exception of tooth elements) select that which your own experience has proved to be best adapted to yourself in regard to digestibility; where neither has any decided advantage in this regard, then consult your taste and your convenience.

Let your food be thoroughly masticated, and well mixed with saliva before it goes to the stomach, that it may be the more readily permeated by, and acted upon by the gastric juice.

As the saliva is secreted by the glands of the mouth, to be mixed with the food in its preparation, by mastication, for the stomach, so the gastric juice is secreted by the glands of the stomach, and mixed with the food, in digestion, to prepare it for passing into the circulation, to build up and nourish the body. If the food is not properly prepared in the mouth, by mastication and insalivation, the gastric juice can not so readily permeate and mix with it, and digestion is rendered more difficult.

Aid your digestive powers by exercise and fresh air.

Regulate your meals so that all that is eaten at one time may be digested and passed into the system before a fresh supply is sent to the stomach.

The action of the gastric juice or digestive fluid of the stomach reduces the food to a succession of conditions or states.

If fresh food is sent to the stomach, after its work has been going on a little while, the work has to re-commence for the new food, and that which was already partly digested is almost certain to *sour* and spoil the whole mass. This is one of the most fruitful sources of indigestion and dyspepsia.

To use a homely illustration, it is much as though you were to put a cake in the oven to bake, and when half done take it out to stir in some forgotten ingredient!

Bear in mind also these general principles:

"Solid food is sooner digested than liquid.

"Vegetable food requires for its digestion more time than animal food.

"Animal diet yields a larger amount of nourishment than vegetable.

"Bulk should be in proportion to the nutrient principle."

Too much rich nutrient overloads and oppresses the system, and clogs the organs in the performance of their several functions, while the circulating fluids become too thick and stimulating, and disease inevitably follows.

For the *facts* contained in these two chapters on "Food Principles and Chemical Elements," I am indebted to that most beautiful treatise, "Food and Diet," by Jonathan Pereira, M.D., F.R.S., etc., a European physician of great experience; a most learned and scientific man, and a highly successful writer. His work summarizes the investigations of Leibig, Berzelius, Bischoff, and other eminent chemists, and constitutes a reliable *vade mecum* for amateur investigators.—*Southern Dental Journal.*

A CASE—AMALGAM.

Miss W. presented a few weeks ago a right superior third molar, on the buccal surface of which was a large amalgam filling, extending almost across the side of the tooth, and about a line beneath the margin of the gum. This filling had been inserted about two years before this examination.

There was no sensitiveness of the tooth, either from pulp or inflamed dentine at the time the amalgam was introduced. There had been from the time the filling was introduced, frequent paroxysms of pain in the parts about the tooth which seemed to extend from it.

It was suggested by a dentist and physician that it was neuralgia, and did not proceed from the tooth, inasmuch as there was no soreness about the tooth, the gum showing only a little irritation of its margin, where it was in contact with the filling.

The pain was so frequent and so severe that the lady thought of having the tooth extracted.

But upon examination it was proposed to remove the filling, ascertain the condition of the cavity, and await the result. Upon the removal of the filling there was no exposure of the pulp nor sensitiveness of the dentine, a jet of cold water produced no pain, nor was there any decay in the cavity. A pledget of cotton, moistened with diluted creasote was packed into the cavity, and the patient dismissed for about a week; during this time not the slightest pain or discomfort was experienced by the patient. At the end of this time the margin of the gum was less irritated, and was somewhat pressed out of the way, and an oxyphosphate filling was introduced. Since that time, now about two months, not a tinge of pain nor soreness has she experienced in or about the mouth.

It should then be said that the amalgam filling was a good one. It was well inserted, well finished, and had no decay about it.—*Dental Register.*

A NEW METHOD OF FILLING TEETH.

BY DR. C. A. TIMME, HOBOKEN, N. J.

[Extract of Paper read before the Central Dental Association of Northern N. J.]

At the last meeting of the New Jersey State Dental Society, held at Asbury Park, I was commissioned a delegate to the meeting of the Society of German Dentists, to be held at Frankfort-on-the-Main. On arriving at the place of meeting I found that our professional brethren had not been idle, but had made steady advances in practice. Among the new and interesting things that I saw was a method of filling teeth, in which the so-called magnetic gold is employed.

The originator of the process is Dr. Wilhelm Herbst, of Bremen. Magnetic gold is a form of very soft, and at the same time cohesive gold. Its principal point is its purity. If two pieces of No. 30 or 60 be placed in contact, slightly annealed and then rubbed with a burnisher, it will be found that they have become thoroughly united. It is this high grade of cohesion that has given to it the name of magnetic gold.

In inserting it the cavity is prepared in the usual way, but no retaining points are made, a slight undercut being all that is required. No mallet is used, and the first instruments employed are not unlike the burnishers used for finishing fillings with the dental engine. A few cylinders are placed on the floor of the cavity and against the side walls, the proper point is placed in the engine, and while being rotated it is pressed upon the gold, which is thus easily burnished into place. The point must of course be quite clean, and care must be exercised that the friction is not so great as to heat the tooth to a point of discomfort.

When the foundation of the filling is laid another instrument is employed, which may be made by breaking off the head of an engine bur, placing the rest in the engine and grinding the end upon an oiled Arkansas stone. The point not being polished, is, when in use, soon coated with a film of gold. Instead of burnishing the surface, therefore, and giving to it a high polish, it merely condenses it and leaves upon it a dead surface that does not prevent the cohesion of fresh pieces. Very little force is employed in the operation, and the point is pressed upon the surface only at interrupted intervals. The engine can therefore be run at a high speed without danger of overheating the tooth.

In this manner gold may be introduced very rapidly, and a large filling may be made in a comparatively short time. The whole is finally finished with heavy foil, or with cylinders, and polished in the usual way. The German dentists who are employing this method claim that it is a great improvement upon the old way of filling teeth.

Serrated points not only weaken the gold, but they leave a rough, uneven surface that it is difficult to make smooth. It is also no doubt true that many soft, weak, poorly organized teeth, can be successfully filled with this gold, that would not withstand the malleting necessary in the use of the usual forms of gold foil; teeth that were formerly condemned to the use of plastic fillings.

To make a thoroughly good filling with this material considerable practice is necessary, but the method once acquired, future operations are greatly facilitated.

Some years since a number of dentists besides myself, attempted to substitute smooth points for serrated ones in the filling of teeth. Our efforts were not, however, crowned with success. We have since discovered that the fault was in the gold, and not with us. Theoretically, smooth points should make a more solid filling, and the gold should be inserted in one-half the time required for the use of serrated points. By the employment of this gold, this theory is proved to be correct in practice, and in Germany it is now extensively employed.

EDITORIAL REMARKS.

What produces cohesiveness in gold foil is perhaps still an open question. We opine, however, that the "magnetic theory" will hardly satisfy all. Some time since we announced our success in producing highly cohesive gold foil, which was nevertheless quite soft. We do not think this was anything really new, and yet it was so unusual to the observation of most dentists that they doubted its possibility. Its sale since, however, has proved its superiority, though we do not profess there is anything magnetic in it.

As for the mode of using highly cohesive gold as described above, its good results can easily be tested by every dentist having an engine. There may be a great deal in it, and therefore much for which to thank the inventors.

A VACATION FROM TOBACCO.

The Pittsburgh *Dispatch* speaks of a distinguished physician who abstains from smoking every October, in order to give his system thirty days' recuperation every year from the effects of tobacco in accelerating the movement of the heart. He finds this acceleration very marked by the end of September. His October abstinence causes the heart to return to normal action; and on the first of November he commences another year's course of smoking. How much better, how much more sensible, how much more manly, it would be to abstain altogether from a manifestly injurious, and therefore manifestly wrong, practice! What a grand opportunity conscientious physicians have to set a good example in this matter, and give the weight of their powerful influence against a useless and harmful habit!

EXTRACTING THE SIXTH YEAR OLD MOLARS.

Dr. Allen, of New York, once said: At the creation, when God established His laws, He established them upon facts that would stand the test of time. When He made the laws for the development of man, those laws were substantially correct. There was no defect in these laws; the Creator intended the sixth year molars to be there as much as He intended the second molars to be there. He intended that there should be just as many teeth as a well-developed jaw presents. Now, that we shall interfere with that law I think is wrong. Let nature have its due course, and help it, rather than undertake to remedy evil after we have violated the law.

How do we stand as a nation? We refuse, virtually, to choose the materials that give a sound and healthy development to the jaws and teeth. There is the origin of our whole difficulty. There is probably not a nation on earth where there is such a prevalence of decay in the human teeth as in the American. Probably not a nation on earth where there are so many dentists, and so good ones too, as here. Let us go to the root of this matter. We should use the materials for food that contain in sufficient abundance the proper nourishment of these organs. We have fourteen substances forming the human body, sixteen, including the teeth, hair and nails, and these constituents are contained in the articles of food designed for man, and among those articles of food there is one that is called "the staff of life," that is, bread. The Creator placed in the hull of grain some of the most essential elements in the "staff of life." These are the phosphate and carbonate of lime, so necessary to a well developed tooth. We refuse its use then, and it is here in a very vital point that we violate the laws of nature. It is estimated that every child consumes a half barrel of flour a year. If that child is raised on fine flour, it is denied some twenty pounds of this mineral element, which should be taken into the system in order to develop the bones and teeth.

The result is that the teeth are not organized as they should be, and we have this abnormal condition. When we look at other nations, we perceive that their habits of diet are different. When we go among a people where there is nothing done to change the proportion of these sixteen constituents, but where they are taken just as our good Father has furnished them, we see that those races do not lose their teeth.

Now I am confident I am right in this matter, and that we can do more by correcting a violated law to remedy the evil, than by going still further, and violating another fixed law with a view to its prevention.

For the restoration of teeth of soft dentine, a filling of oxy-phosphate is eminently useful.

FILLING ROOTS.

I have found a pretty *thick* alcoholic solution of shellac to be one of the very best, if not *the* best, of materials for filling the roots of teeth. It can very easily be forced to the ends of the roots, whether in the upper or under jaw, by merely saturating a bit of cotton or spunk with the solution, and manipulating it in the pulp chamber; it is not necessary at all to carry an instrument into the roots. It will flow through the most crooked canals, even if of hair-like dimensions, and partly occupied with root vessels, which you have been unable to remove. The cavity should be plugged with the same material and cotton, and allowed to remain a week or more, as convenient. The object of this is to allow the saliva of the mouth to abstract the alcohol from the shellac, leaving the latter in the roots in a solid state. Water has such an affinity for alcohol that it will take all the latter from a solution of shellac. If you will fill the roots and cavities of decay of a few extracted teeth, and immediately throw them into water, you can see for yourself how rapidly the shellac will harden.

A drop or two of aniline red, placed in an ounce of shellac solution, will enable you to see the result of your root filling immediately, by holding the tooth up between your eye and the light. But I do not recommend aniline in the solution that you use in the *mouth*. Dried up root vessels embalmed in shellac will not be likely, at all, to cause any trouble by decomposition, even if left in the roots of teeth. In more than three-fourths of the cases, portions of root vessels are left on account of difficult or careless removal.

I feel very confident that if the reader will *experiment* in this direction he will see the great value of this new mode of treating roots.

If the operator should be under the necessity of immediately plugging the cavity of decay permanently, I see no reason why he might not do so after using shellac in the roots. Syringing the cavity with water would harden the shellac at the canal openings enough for the insertion of a plug. The small quantity of alcohol in the roots would be absorbed by the water in the surrounding tissues.—HENRY S. CHASE. Editorial in *Missouri Dental Journal.*

A Gold Filling Removed from the Neck.—A lady in Tennessee had a gold filling, about the size of a squirrel shot, recently removed from the side of her neck, immediately beneath the angle of the jaw. She was ignorant of the manner in which it got there, but it probably escaped from one of her teeth while eating and lodged in the fauces or a fold of the mucous membrane of the lower part of the mouth, and from thence made its way to the place from which it was removed.

THE TEETH OF THE NATION.

There are about 15,000 dentists in the United States, and they pack into the teeth of American people, says the *Cleveland Herald*, a ton of pure gold every year. About five times that weight of less precious metal, such as silver, platinum, and tin, goes the same way. It is estimated that this amount of metal is worth $1,000,000, and that if present dental methods are kept up, all the coin in the United States will have been buried in the grave-yards by the time the twenty-first century rolls around. It is said that the demand for gold in dentistry is rapidly growing every year. This is accounted for in part by the fact that many people with false teeth insist upon having them filled, so that they may seem all the more natural. There are about 4,000,000 false teeth manufactured in this country every year. Dentistry is not what it used to be, however, and prices have come down wonderfully since the days when the leading operators could afford to retire after a practice of eight or nine years. Still, there seems plenty of work to be done in the future, seeing that the decay of teeth is increasing. Two hundred years ago one person in five had sound teeth. A hundred years ago but one person in twenty-five had perfect teeth; and in this nineteenth century age of reform our very latest statistics show that but one person in eighty has perfectly sound teeth.

Physiognomy of the Front Teeth.—Dr. Cravens, of Indianapolis, says: There are six teeth that mark the features so strongly that the eye of an observer instantly comprehends whether they add to, or detract from, the symmetry of the face. The superior incisors and canines belong to the physiognomy, as fairly as do the eyes, the nose or the chin, and express fully as much as the two latter in depicting character; so that, if malformed or maltreated, these teeth are made to convey much the same impression as do sightless or artificial eyes.

I have seen a Quaker lady, of fresh complexion and naturally sweet face, whose front teeth had been so wofully mutilated by proximal V shaped separations, that her sweetest smile caused a friend to involuntarily shudder. It is such operations as these that cast a shadow upon Dr. Arthur's most admirable system of separating. Bad judgment and bungling manipulation cannot succeed in delicate operations.

[These V shaped separations should be from the inside and longitudinal with the teeth—made by V shaped three cornered reamers attached to the engine, and turned rapidly, while the reamer is constantly passed up and down between the teeth. It should not show from the outside, Dr. Bonwill has made this a prominent feature of his work. The teeth are filled from their lingual aspect. Superficial cavities are obliterated by the reamer, and permanent separations made that are proof against further decay.—ED. ITEMS.]

TO FACILITATE THE REMOVING OF IMPRESSIONS FROM THE MOUTH.

DR. C. R. RENCHER, OF ENTERPRISE, MISS.

I make a hole about the size of an excavator handle, through the center of the impression cup. In taking with wax I form it in the cup so that the wax will be the highest in the center, and with an excavator I make a hole through the wax, and with a piece of small twine waxed until it is stiff I pass it up through the cup and a short distance above the wax, and by pinching the hole together the twine is held in position. After the impression remains in the mouth awhile I withdraw the twine and if it is for a full set, it very soon falls loosely by its own weight. If I use plaster for an impression I use a small piece of wax in the cup to hold the string in position, always being sure the ends of it will come in contact with the dental arch.

This hole permits the air to diffuse itself between the palatine arch and impression, which causes it to fall loose without using any force to displace it.

FOR "FREEZING" THE GUMS.

DR. F. L. BROWN, of Little Falls, N. Y., says: The following is a simple and convenient method:

Wind both points of a foil carrier with cotton, saturate the cotton with ether and apply to both sides of the tooth to be extracted. Continue to apply the ether until the parts are quite white, when the tooth can be removed with comparatively little pain to the patient. This method will be found to work very nicely, especially with very nervous persons.

NEW JERSEY DENTISTS TO BE PROSECUTED.

TRENTON, Jan. 12.—The New Jersey State Dental Society is a decidedly business-like organization. It has just held its semi-annual meeting. Among other things considered, State Prosecutor Meeker was ordered to arrest Dr. L. H. Sutton, of Newton, Sussex county, for practising illegally.

Dr. Sutton has been notified several times by the officers to attend the meetings and give reasons why he did not take out a license, but he has failed to comply with the request. There are other dentists in the State who will be arrested on similar charges.

We cannot jump into a successful practice. It is very difficult to walk into it by stepping into another man's shoes. It is by the patient plodding through difficulties that we are brought to permanent success.

SEPARATING MODELS FROM IMPRESSION.

I use a soap preparation, taking a small bristle brush wet with water, and rubbing it on a cake of soap, making a little suds, and applying to the varnished models. I have no trouble in separating; leaving the models smooth and better than any oiling. I use soap for all separating, in plaster or wax.

After coating the model with the suds I let it stand a minute or two, sometimes add a second coat—if the impression is for a partial plate, I sometimes pour water on to remove the suds that may have settled in the crevices or hollows. F. G. TIBBITTS, Fayetteville, N. Y.

[Twenty-five years ago, while practicing in Winona, Minn., we paid a rival of ours twenty dollars for the right, under a patent, for the above process. Those who cover their models with tin before packing with rubber will find by besmearing the tin with strong soap-suds that, after vulcanizing, the tin will peel off very nicely. If the tin is put on very smoothly the surface of the rubber will be found nicely finished.—ED. ITEMS.]

Pinless Teeth.—Dr. J. L. Wager, of Deposit, New York, sends us a specimen of pinless teeth, or rather his mode of making and using. We can hardly describe them and the process of moulding without expensive illustrations, but it does look as if they ought to be a success. With a plastic base, their attachment must prove firm, and the expense and space occupied by the pins are avoided. The trouble is the expensive experiment of introducing them. Ash, of London, has gone to great expense in supplying the profession with a very good pinless tooth, but in this country they do not seem to "take." Perhaps Dr. Wager's would meet with better success.

The chemical action of oxy-phosphate in hardening softened dentine, specially adapts it for this large class of teeth. When the dentine has softened quite to the pulp, so that its laminations can be readily raised with the instrument in layers, by all means let it remain undisturbed, and fill with phosphate of zinc. The softened dentine soon becomes "tanned," and a permanent and efficient covering made for the pulp.

"*A tooth soaked in sugar water,*" says M. Lugar, "becomes jelly-like from the sugar combining with the lime of the tooth." We have not verified this statement by experiment, but if sugar thus acts as an acid, we certainly see how its too free use must injure the teeth in the mouth.

There should be nothing in confusion in the dentist's surroundings at his chair. "A place for everything, and everything in its place," is a fine motto for a dentist.

MERCURY.

EDITOR ITEMS:—Since locating here, my attention more than ever has been directed to the evil effects of mercury in the system; how it is made manifest within the oral cavity; and how it so frequently sets aside our usual line of treatment. In fact, some cases obstinately refuse all methods and remedies.

The results of direct salivation I have already noticed here, from the child of seven or eight years, on up to those of advanced life. All these cases speak out only too clearly that this system of medication is uncertain and dangerous.

Its effects are so serious; it continues in the system so long; and is so difficult to combat, that it seems strange that it should have any advocacy.

The effects of mercurial poison may be modified, but is it possible to entirely eradicate it from a subject who has already reached the meridian of life?

H. H. WAY, D.D.S.,
St. Thomas, Ont.

Rival Journals.—When the Ohio *State Dental Journal* was started, it looked like rivalry with the *Dental Register* and the *Missouri Dental Journal.* The two latter were so ably conducted it was thought a great risk for another to expect patronage so near their neighborhood. The sterling character of the new comer, however, soon drew to itself support, and that without appearing to detract from the others. If rivalry means the development of such dignified, worthy, progressive journals as these three, the more rivalry we have the better. And though the *Missouri Dental Journal* is now no more, its death was not from a want of the severest effort to make it prosper. It is difficult to transplant anything, especially when it is old. And especially when the old gardener is not taken along.

To protect fillings of zinc phosphate. Cut and file a piece of gold plate of the size and shape of the surface of the cavity. Now solder to its under surface the center of a narrow strip of gold and bend up the ends. As soon as the filling is placed in the tooth, and while it is soft, press this cap upon the surface.

A gutta-percha filling may be made quite durable in this way, though of course in this case the cap must be pressed on while hot.

Caulk's Dental Journal is quite a pamphlet. As an advertising medium it is a shrewd hit, while the amount of information it gives about dentists and dentistry makes quite a summary of dental information. —Dr. L. D. Caulk, Camden, Del. Price, 25 cents.

Editorial.

UNPARDONABLE FAULTS, PRODUCING IN OUR PATIENTS NEEDLESS DREAD OF DENTAL WORK.

First. A coarse, uncouth, unceremonious appearance and behavior are unpardonable. Some can overcome all this by severe culture. If it is not possible, there should be a change of employment.

Second. An unapproachable, stiff, forbidding air is repellant. A sensible patient soon discovers the difference between a dignified reserve with a manly bearing, and a cold, hard rigidity of assumed independence.

Third. A stern, haughty, self-concious superiority is disgusting. Real greatness is modest. While our manner may show self-confidence in our ability, there should be that conciliatory spirit and severity of manner which puts our patients at ease with us.

Fourth. A rough, careless manner in our movements, specially in our treatment of the mouth and teeth, causes needless aversion to dental work. Some dentists seem to think it smart—an evidence of professional experience and skill—to act in a blunt, nonchalant way. They sieze the mouth with rudeness, and draw back the cheeks so roughly as not only to anger their patients, but sometimes to actually do harm. So in their unmannerly attacks upon the teeth, they affect indifference to pain, laugh at complaints and work like butchers, assuming that severity will be taken for thoroughness.

Fifth. A too familiar, maudling, patronizing air is equally repellent. Soft, silly, foolish expressions and demeanor are disgusting.

Sixth. Dull or improper instruments are cause for complaint. The idea of some that it will be taken as evidence of skill to have but few instruments, and the boast that "I can use any thing," is nonsense; the more skilful the dentist, the keener, brighter and more delicate, varied and appropriate will be his instruments.

Seventh. Disregard of the comfort of the patient is a needless fault. We place the patient in almost any position of awkwardness and discomfort for our own ease, without seeming to think the patient has any rights that we are bound to respect, and sometimes when our own comfort does not make it necessary, the inconvenience is the result of mere thoughtlessness.

Eighth. Not using available means for lessening hypersensitiveness of teeth gives unnecessary dread of any future dental work. We can-

not here speak in, detail of what these are. Every dentist who truly sympathizes with his patient will find himself more and more successful in finding and using them.

Ninth. Close attention to the work in hand will be gratefully received. Inattention, listlessness and laziness will be considered an unpardonable slight. Incessant talking is irritating, and especially conversation with others in the room. Stopping work to receive others, or giving them examination or advice is a cause for complaint; for a patient naturally feels that he is paying for the time he occupies the chair, and has a right to the dentist's close attention. The habit also of doing slowly what may be done rapidly, or spending much time in insignificant details or preparations which should have been completed before the main work was commenced, mortifies and gives a sense of injustice.

Tenth. Equally faulty are those discomforts necessitated by the neglect of proper office apointments, and the want of cleanliness of our person, habits or surroundings.

WE ALL HAVE SIGNS.

And they are generally significant of character. So they should be. What is a sign good for if not to designate the occupant of the premises? True, a sign is sometimes designed by the owner to be deceptive, but it seldom deceives. He is perhaps some insignificant mountebank. That man will try to compensate for his littleness by having a big sign. But we all know a large sign is generally used by a small man. He is unwittingly publishing his own character. A shrewd, unscrupulous, pretentious quack will be almost sure to tell what he is by flaring, bedazzling, showy signs. The other day we passed by the office of an ignorant, lazy, unprogressive "Surgeon Dentist." We were not surprised to find on his door an unpainted board with the announcement of his pretentions painted on it by his own clumsy fingers. It was nothing but fair for him to thus inform passers-by that he was a cobbler.

Enter the office of a "professional man," and you will see similar signs of his true character. A filthy man will say so by his filthy appearance, a lazy man by his shiftlessness, and an indifferent man by his absence in business hours, etc.

We all have signs of some character, whether we will or not, and will each exhibit the right one in spite of ourselves.

The Chicago Dental Infirmary is out with its second annual announcement. Of course there are yet no graduates. The number of matriculates for the present term is eighteen.

THE CROWDING OF TEETH A CAUSE OF DECAY.

We have referred to this subject before. It can hardly be made too prominent. We have never had our own teeth examined by a fellow-dentist without eliciting the remark, "It is of no use to look for decay in your front teeth, they are too well apart." There seems to be a general acknowledgement, if the teeth are otherwise good, that free interstices between teeth is a security against decay, and that however good teeth may be, a crowded condition is a source of caries.

Is not this very suggestive to our treatment of teeth? Many dentists are very particular not to make any more separation between teeth than is absolutely necessary for their manipulation, and this must be made by wedging, so that the teeth will soon resume their original positions—the very condition which has fostered the decay they are removing, and the condition which will again produce decay. Fillings are often pronounced poor, when it is the situation in which they have been left which is poor. Frequently great patches of gold are allowed to appear upon the labial aspect of teeth, because the dentist has preferred to cut away sound enamel to effect entrances into approximal cavities rather than produce sufficient separation of the teeth to prevent these dis-sights.

But when we favor the liberal separation of crowded teeth, we do not mean that indiscriminate use of the file which often makes front teeth look like so many straight pegs. Often, however, if the teeth are crowded, superficial decay will be found almost the entire length of their approximal sides. The idea that filing this away will predispose to further decay is not well founded. A respected old judge once wished us to examine his teeth for decay. We found none. He had a noble set of teeth for his age; had only lost his wisdom teeth and, we believe, two of the first molars, and yet had only a few cavities filled, and most of them in the grinding surfaces. Said he: "When young, my teeth were called frail, and I was warned that, at best, they would serve me but a few years. Between nearly all my front teeth and the bicuspids there was superficial decay, which the dentist removed by filing, and he advised me to repeat the operation whenever I found it reappearing. Three places were so deeply decayed that they were filled, and there were two or three cavities filled on the grinding surfaces. I bought a pack of very thin fine-cut separating files, and have kept up the habit now for more than forty-five years, without, as you see, losing many teeth or having many cavities filled. I am careful to press the smooth side of the file against the outside edge of one tooth while I press the cutting edge toward the inner edge of its mate, so that my filing does not appear on the outside, but makes a V shaped separation on the inside, admirably self-cleaning."

The fine appearance of his teeth certainly told well for his almost life-long practice. He could not have used the file very excessively, for even at his good old age they were not much more widely separated than some teeth are by the ordinary practice of some dentists, except the V shaped interstices approached the lingual side. Viewed from this aspect these approximal surfaces were as hard and polished as though a file had never touched them. In fact, he said that for many years he had hardly more than touched them with the file to remove any accumulation, much as others used their tooth pick, but he did use his file every day.

The habit of some dentists using the V shaped separating file and thus making a corresponding-shaped separation between the teeth from the grinding edge down to the gums, is unreasonable, injurious and barbarous, and constantly inconvenient to the patient. Food accumulates in such places, and is forced into a more and more compacted form in spite of all efforts to keep it out. How ever such a cruel, destructive and unphilosophical tool could have been invented, and especially how it could have survived the age of cant-hooks, is a mystery. And yet there are dentists who use them now, as there are some old fogy physicians who still use the cant-hook.

Nature designed that the teeth should have a greater width between them at their necks, than at their grinding surfaces; and this, as a rule, is their condition when the dentist first sees them. As the food, therefore, is pressed upon the surfaces of the teeth, all that passes into these interstices is freed from any wedging as it passes toward the necks of the teeth.

There is another peculiarity in the approximal surfaces of the teeth. They are rounded from the center outward and inward. So that as nature shapes the teeth it is difficult for food to remain between them.

In filing teeth for separation no sharp corners should be left, either on the outside or inside, and the interstices should be made much wider toward the inside. In fact, this, and all other artificial work, should not be in view to a casual observer any more than is possible. Of course, to accomplish this, many approximal cavities must be filled from the lingual side. This is difficult at first, both for the dentist's position and for the skilful use of the packing instruments. But, by practice, it will become much easier than at first appears possible.

Many prefer the three-cornered V shaped reamer to the file for producing this separation, but this requires the use of the engine and the back-action attachment. With these facilities—especially when the motion can be so great as with the Bonwill engine—the work is done very quickly, smoothly and painlessly.

"But can the teeth be so separated as that they will not again come together?" No; not generally; neither is it specially desirable. Let

them come together as nature generally placed them. But you will observe that in a normally arranged set of teeth they bear upon each other near their grinding or cutting surfaces. Decay seldom attacks them here, and by this arrangement the spaces are easily kept clean—generally without artificial helps. If there are approximal cavities, they should be filled so flush and convex that tooth cannot thereafter touch tooth, except as above indicated. Sometimes considerable building out is necessary to effect this, but the extra labor is well invested.

THE MANIPULATION OF OXY-PHOSPHATE.

There is such a thing as too much pains-taking and deliberation. In using the phosphate of zinc, some dentists jeopardize their work by working too much. If it is a good phosphate, the quicker it can be brought to a stiff dough and packed in the tooth-cavity, the better. If you commence the mixing by using only enough powder to make a thin cream, you can then add powder rapidly till the whole is a stiff mass. You must not make it necessary to add more powder from the bottle to make the mass stiff, but have plenty on the slab. It should be immediately carried to the tooth and packed, *while its heat still shows the process of chemical union active.* If it is much worked after this, even to polish it, it is injured. And it should be left as nearly as possible in the contour desired; for any cutting, or filing, or scraping, after it has set, will make a true polish impossible, and cause the surface to imbibe moisture, thus favoring disintegration. Its own undisturbed crystalization produces a peculiar gloss that is an almost impervious polish.

To test all this, mix a mass as above directed, and dividing it, roll one-half into shape and place it on the table. Continue to work the other half till it has become quite cold and stiff. Now test the two. Let them fall upon the table; the first will strike with a sharp report and rebound like a stone; the other with a dull sound and little rebound. Cut them: the first will cut hard and throw off chips like cutting marble, and, if your knife is sharp, it will become dull by the grittiness; the other will cut like tough, dry putty and come off in shavings. If you will wet them, you will find that both will imbibe the more moisture where they have been cut. Crush them: the first will be broken with difficulty; the other will crush into powder, with a comparatively small amount of force. In fact, if the latter had been worked a little longer, it would have crumbled in the hand, and no ordinary force would again make it a coherent mass.

The spatula in mixing phosphate is often too small and slender. The large blade of a jack-knife is good. The best tablet to mix on is a thick glass about 3x4 inches. The best instrument for packing is

a smooth, thin, but stiff blade. A good covering to protect the filling while hardening is gutta-percha varnish. The same as put over the nerve if exposed; and which makes a fine lining for sensitive teeth, and a covering for sensitive surfaces after medicaments have been applied.

OUR MORAL ATMOSPHERE.

An atmosphere of character we must have. None of us are neutral in our unconcious influence. It comes from what we are. It radiates from the heart in spite of all restraints, it beams from the countenance in spite of all disguise, it is felt in our demeanor in spite of all professions. Our moral atmosphere is either the perfume which comes from the heart's purity and noble activities, or the stench forced out from its filth and debauched workings.

We all recognize the difference between the atmosphere of the grog shop, and the parlor; the chamber of contagious, disorganizing disease, and the healthy, genial room of beauty and purity; the miasmatic district reeking in decay and death, and the sweet mountain air. There is quite as much difference in the atmosphere of individuals; we know it, we feel it; and we know it and feel it in spite of the strongest determination not to recognize it. With the evil, strong purpose may smother it, a new role may divert it, a temporary change may modify it, but the smoldering fires will burst forth, the false surroundings will be dissipated, the feeble efforts to rise above oneself will be abortive, and the moral atmosphere which comes from the real character again prevails. With the good, acts may misrepresent motives, frailties may thwart good purpose, and mistakes may bring about evil where good was intended—every wind may blow adversely; the wicked may traduce, and even the good misrepresent, yet the moral character holds sway; what the man is rises above adversity, malignity and calumniation. The sweet perfume that comes from real goodness, the balmy zephyrs that emanate from noble purposes, and the fresh breezes that arise from the irrepressible agressiveness of good deeds, all combine to produce an ineffable fragrance, an enchanting music, and an exhilarating atmosphere that gives unmistakable evidence of the character of the soul which causes them.

Few Dentists are forehandy. Not because they do not earn enough "to pay as they go" and have enough left for a comfortable "nest egg," but many are thriftless, and most spend freely because they earn easily. Were they to economize, as the laborer does who earns but two dollars a day, they would soon be in "easy circumstances," and be all the better in morals, health and happiness for their economy.

THE GLORY OF YOUTH.

We admire the young man of intelligence, with clean habits and a pure heart. In his very looks, there is something wholesome. What an unconscious dignity there is in his bearing. What a power in his character. What a promise in his future. He is as the dawning of the beautiful morning to the glorious day—sweet, balmy and inspiring.

But to meet all the requirements of a desirable future, or even to be what the present demands, there must be more than the power of talent, or the accumulation of wisdom. The first may give position, and the latter brightness and honor, but neither can take the place of real goodness and affection, and that unselfishness which breathes good will to men. These added, we may prognosticate with more certainty the day's character. The serous clouds, the genial winds and the fragrant odor may portend "pleasant weather."

But be the surroundings pleasant or unpleasant, such a young man has a grasp on the elements which subordinates all things physical to mind and spirit.

The æolian songs of the morning zephyr may change to rougher winds, and the soft, feathery clouds to gathering blackness, but shall this give us dismay? To the physical world these changes come for good, and pass to leave a greater glory. So, stern necessities, severe trials and cruel rebuffs give to the youth of good parts, vigor, growth and firmness. Let him enjoy the fine morning and look forward to the bright sunshine, but let him also prepare for the severest storm and the direst necessities. It will bring wholeness, breadth and development to his nature, and usefulness to his life. In a model young man we look for brawn as well as goodness, endurance as well as luster, and fruitage as well as flowers. These cannot come without all weathers and all seasons.

With all these combined, what is there more grand upon the earth? And for the possessor, what enjoyments more transcendant and possibilities more glorious?

Ah, there is, one upward step. The climax of power and glory is the subordination of all to the Divine will. Then whatever may be attained here shall prove but a step leading to that new sphere in which what we have here mastered shall there unfold into the possession of an everlasting kingdom.

Young man! Young woman! What of the morning? The day cannot make you, but you can make of the day what you will. Rise, shine; for your light has come, and glory is within your reach.

But the golden hour passes. Opportunities and possibilities are fading one by one. What you may be by present exertion will soon be beyond purchase. The grand glory of youth comes but once. Neither the strength of manhood nor the honor of old age will bring back the glories of youth.

Miscellaneous.

ITEMS IN CHEMISTRY.

BY PROFESSOR H. E. ROSCOE.

CHEMICAL COMBINATIONS.

All the elements combine with each other in fixed proportions by weight, and the numbers representing these proportions are called the combining weights and their symbols attached to them. Here is a list of the most important elements. The letter placed after the name of each element is the symbol or short way of writing the name. Thus, instead of writing the word phosphorus, I may write the letter P. For these symbols, the first letters of the words are generally taken; but in some cases the Latin and not the English word is used; thus Fe stands for iron, from the Latin ferrum, Ag for silver, from the Latin argentum. The numbers placed after the symbol of each element represent the fixed proportion, by weight, in which that element combines with others:

COMBINING WEIGHTS OF THE ELEMENTS.

Non-Metallic Elements.		*Metallic Elements.*	
Oxygen	O = 16	Iron	Fe = 56
Hydrogen	H = 1	Aluminium	Al = 27
Nitrogen	N = 14	Calcium	Ca = 40
Carbon	C = 12	Magnesium	Mg = 24
Chlorine	Cl = 35	Sodium	Na = 23
Sulphur	S = 32	Potassium	K = 39
Phosphorus	P = 31	Copper	Cu = 63
Silicon	Si = 28	Zinc	Zn = 65
		Tin	Sn = 118
		Lead	Pb = 207
		Mercury	Hg = 200
		Silver	Ag = 108
		Gold	Au = 197

Each of these numbers has been found by experiment, that is, by the analysis of the compounds which that one element forms with others. Thus we find, when we analyze the red oxide of mercury, that it contains 16 parts by weight of oxygen to 200 parts by weight of mercury, to form 216 parts by weight of the oxide; or when we heat sulphur and copper together until they combine, we find that exactly 63 parts by weight of copper unite with 32 parts by weight of sulphur to form 95 parts by weight of copper sulphide; and if more than this quantity of one of these elements had been taken, it remains

uncombined. Now the same weight of oxygen (16 parts) unites with other metals to form oxides, and the weight of metal with which it unites is either the combining weight of the metal, or some weight bearing a close relation to the combining weight. Thus 16 parts by weight of oxygen unite with 56 parts by weight of iron to form an oxide of iron; with 40 parts of calcium to form an oxide of calcium, called common lime; with 65 of zinc, 118 of tin, 207 of lead, to form oxides of these metals.

Our chemical short-hand means, however, more than this. If I write the symbol O, or the symbol Hg, I signify thereby not any weight of oxygen or of mercury, but exactly the combining weights of these two elements. O means 16 parts by weight of oxygen, and no other weight; Hg means 200 parts by weight of mercury, and no other weight; and therefore I have written O = 16 and Hg = 200 in the table.

Now supposing I want to write the chemical symbol for a compound, I have only to put the symbols of the elements it contains alongside of one another. Thus HgO signifies oxygen of mercury; and this symbol not only tells me that the compound contains oxygen and mercury but it tells me how much oxygen and how much mercury the body contains, because I remember that O means 16, and Hg means 200; so that the chemical symbol, or formula, is most useful as expressing not only the qualitative composition (or what the body contains), but also the quantitative composition (or how much of each thing the body contains). Thus, again, CaO means calcium oxide, or lime, and exactly 40 and 16, or 56 parts by weight of lime; ZnO means zinc oxide, but 65 and 16 or 81 parts by weight; while H_2O signifies water, being twice H, or two parts by weight of hydrogen combined with 16 parts by weight of oxygen to form 18 parts by weight of water.

Some of the elements combine together in different fixed proportions, forming several compounds. Thus nitrogen and oxygen unite to form five different compounds, as follows:

The first compound, called nitrogene mon-oxide, contains 28 parts by weight of nitrogen, to 16 parts by weight of oxygen.

The second compound, called nitrogen di-oxide, contains 28 parts by weight of nitrogen, to twice 16, or 32 parts, by weight of oxygen.

The third compound, called nitrogen tri-oxide, contains 28 parts by weight of nitrogen, to three times 16, or 48 parts, by weight of oxygen.

The fourth compound, called nitrogen tetroxide, contains 28 parts by weight of nitrogen, to four times 16, or 64 parts, by weight of oxygen.

The fifth and last compound, called nitrogen pentoxide, contains 28 parts by weight of nitrogen, to five times 16, or 80 parts, by weight of oxygen.

Now remembering that N means 14, and that O means 16, we can easily write the symbols for the above compounds.

The first compound contains 28 parts, or two combining weights of nitrogen, to 16 parts, or one combining weight of oxygen. Hence we write the symbol of this compound N_2O.*

For a like reason we write the formula:

Of the second compound N_2O_2
" third " N_2O_3
" fourth " N_2O_4
" fifth " N_2O_5

From this we see that the weight of oxygen contained in the last four of these compounds is twice, three times, four times, and even five times that contained in the first compound. And, we find that it is not possible for us to prepare a compound containing any intermediate quantity of oxygen. If, for instance, we try to combine 28 parts by weight of nitrogen, with 20 parts by weight of oxygen, we get the whole of this nitrogen combined with only 16 of the oxygen, the other 4 parts of oxygen remaining uncombined. Here, then, we have arrived at the two most important laws of chemical combination:

1. The law of combination of the elements in fixed proportions, called the combining weights.

2. The law of combination in multiple proportions of these combining weights, when several compounds of the same two elements exist.

FERMENTATION.

BY C. S. BOYNTON, M.D.

[Part of paper read before the American Dental Convention.]

Does the yeast plant stand alone in its power of provoking alcoholic fermentation? In answering this question, we have occasion to marvel at the sagacity of observation among the ancients to which we owe so vast a debt. Not only did they discover the alcoholic ferments of yeast, but they had to exercise a wise selection in picking it out from others, and giving it special prominence. Place an old boot in a moist place, or expose common paste or a pot of jam to the air; it soon becomes coated with a blue-green mould, which is nothing else than the fructification of the little plant, *pencillium glaucum*. Do not imagine that this mould has sprung spontaneously from boot, or paste, or jam; its germs, which are abundant in the air, have been sown, and have germinated in as legal and legitimate a way as thistle seed wafted by the wind to a proper soil. Let these same minute spores of *pencillium* be sown in a fermentable liquid, which has been previously boiled so as to kill all other spores or seeds which it may contain, let pure air

*The small figure written below the symbol means that the weight is to be taken more than once. O_3 means oxygen = 16 taken three times, or $3 \times 16 = 48$.

have access to the mixture, the *pencillium* will grow rapidly, striking down deep into the liquid its long filaments, and fructifying at its surface. If we test this infusion at various stages of the plant's growth, you will never find in it a trace of alcohol. But forcibly submerge the little plant, push it down deep into the liquid, where the quantity of free oxygen that can reach it is insufficient for its needs, it immediately begins to act as a ferment, supplying itself with oxygen by the decomposition of the sugar, and producing alcohol as one of the results of the decomposition. Many other low microscopic plants act in the same way.

The transformation of wine into vinegar is a phenomenon long known and utilized. From a chemical point of view, this transformation is due to the oxidation of the alcohol. The agent of this oxidation is a micro-organism called *mycoderma aceti*. It belongs to the group of the *micro-bacteria*, and its development presents some interesting peculiarities, which we give in the language of M. Duclaux: "These little beings reproduce themselves with such rapidity that by placing an imperceptible germ upon the surface of a liquid contained in a vat having a surface of one square meter,—in round numbers, nearly 1,600 square inches,—we may see it covered in from twenty-four to forty-eight hours with a uniform velvety veil. This veil is well known to every one as the *mother of vinegar*, and its rapid production is worthy of note. If we estimate that there are three thousand cells in a square millimeter, which is below the truth, this will give for the vat three thousand milliards of cells produced in a very short time."

The *mycoderma aceti* is not always the same. Usually it forms upon the surface of a liquid a soft looking veil, smooth at first, then wrinkled, which is with difficulty submerged and moistened. If we plunge a glass rod into the liquid, it pierces this veil, and, on withdrawing it, a portion remains attached to the rod, and the opening made immediately disappears, being occupied by the veil which seems never to have room enough in which to extend itself. We frequently find another form of veil, dryer, firmer, sometimes showing prismatic colors. This veil does not wrinkle, but is covered with crossed undulations, having sharp edges, which recall the surface of a honey-comb. Sown upon the surface of various liquids, it reproduces itself identically, and it is difficult not to consider it a different form of the preceding. There is still another species producing well developed veils, with scarcely any acetifying power, and reproducing itself with this character. These forms are difficult to distinguish the one from the other, because of their minuteness. We may say, however, that the second is smaller than the first, and the third more attenuated than either of the others.

We have said that our air is full of germs differing from the alcoholic leaven, and sometimes seriously interfering with it. So we find it with

the acetic fermentation. The liquid in which this ferment is cultivated should be a little acid, for, in this microscopic garden we find plenty of weeds ready to rise up and choke out the flowers. The weed in this case is an entirely different organism—a species of saccharomycite, known as the *mycoderma vini*, which has an action quite different from the *M. aceti*. It is a consumer of the alcohol, transforming it into water and carbonic acid. It also consumes the acetic acid. By making the liquid acid in which acetic fermentation is wished to take place, we render the conditions of growth unfavorable to *mycoderma vini*.

Please to notice again that observation has guided men right in the selection of this ferment, and the proper method to combat its enemies, long before science could aid them in the least. Observation has taught us that we must sow *M. aceti*, or we should see the *M. vini* develop in its place, as the germs of the latter are more widely diffused in the air.

Saccharine fluids, left to themselves, are susceptible of divers fermentations, which may occur separately or simultaneously. Those which have been best studied are three: The lactic, the butyric, and the viscous fermentations.

Lactic fermentation: If we expose milk to the action of the air, it will after a time turn putrid or sour, separating into clot and serum. Place a drop of such milk under your microscope, and watch it closely. You see the minute butter globules animated by that curious quivering motion called the Brownian movement. Do not tarry over this too long, for it is another motion that we have now to seek. Here and there you observe a greater disturbance than ordinary among the globules. Keep your eye on the place of tumult and you will see emerging from it a long eel-like organism, tossing the globules aside, and wriggling its way more or less rapidly across the field of the microscope. Part of the change wrought in the milk is due to this organism, which, from its motions, receives the name, *vibrio*. This bacterium, according to Pasteur, develops in sweet liquids, in which it causes the formation of acetic acid, and in milk the coagulation of the casein. In curdled milk you find other organisms, small, motionless, and usually linked together like beads on a string. Under the influence of this bacterium (ferment lactique of Pasteur), glucose, and the substances susceptible of furnishing it (such as mannite, malic acid, etc.), are transformed into lactic acid. The chemist will tell us that this is nothing but a molecular change, lactic acid having the same composition as glucose. Taken in mass the lactic ferment resembles beer yeast —its consistence a little more viscous, and its color a little more gray; but, under the microscope, the aspect is quite different. An interesting point concerning this fermentation is the action of acids upon the bacteria which produce it.

As soon as the medium becomes acid, even by the lactic acid produced, the transformation is arrested. It resumes its course if chalk or carbonate of soda is added to the liquid. The most suitable temperature is 95° Far. (35° Cent). But milk may become putrid without becoming sour.

Examine putrid milk microscopically, and you find it swarming with shorter organisms, sometimes associated with the vibrios, sometimes alone, and often manifesting a wonderful activity of motion. Keep these organisms and their germs out of your milk, and it will never putrefy. Heat kills the bacteria, cold numbs them. The housekeeper, though ignorant of these little organisms, heats the milk, or places it in contact with ice to extend its period of sweetness and postpone the evil day. We often see this fermentation occur in beef juice or in sour starch water; it must play a part in the formation of sour krout, and intervenes very certainly, and perhaps more than the alcoholic fermentation, in the preparation of bread. It very easily invades beer, because of its slight acidity. This fermentation, of which we know so little, merits to be better studied.

The butyric fermentation is in fact always preceded by a lactic transformation, and it is by an ulterior modification that the lactic acid produces the butyric acid. The organism which produces it is a bacterium very nearly allied to *bacillis subtilis*. This fermentation resembles putrefaction in a great many particulars; some authors include it under the same head.

Viscous fermentation: Wines often change so they contain a mucilaginous substance and mannite. This viscous matter has the same composition as gum or dextrine ($C_6H_{10}O_5$), at the same time disengaging carbonic acid gas. In the fermenting liquid we find an organism which is not yet sufficiently studied. These are little chaplets of small spherical bodies, of which the size varies sensibly, according to the kind of wine attacked by the malady. We have united together the lactic, butyric, and viscous ferments, because all three manifest themselves in the same liquids, and because they have for effect the transformation of glucose.

Frequency of the Heart's Action.—The number of pulsations per minute in the shark is 7; in the mussel, 15; in the carp, 20; in the eel, 24; in the snake, 34; in the horse and caterpillar, 36; in the bullock, 38; in the ass and crab, 50; in the butterfly, 60; in the goat, 74; in the sheep and hedge hog, 75; in the frog, 77; in the marmot, locust and ape, 90; in the dormouse, 105; in the cat and duck, 110; in the rabbit and monoculous castor, 120; in the pigeon, 130; in the guinea pig, hen and bremus terrestris, 150; and in the heron and monoculous pulex, 200.—*Burdach Physiology.*

To give a simple illustration of the fluctuation of physical forces, consider for a moment, night and day, Winter and Summer, how these changes visibly affect plants and animals; how in the daylight plants break up carbonic acid, fixing the carbon in their tissues, and liberating the oxygen; how, by the influence of sun heat, evaporation of moisture from their leaves aids the upward circulation of fluid, thus affecting the parts so acted upon; how animals store up energy during sleep, and discharge a greater amount during waking hours. Such, then, briefly, are daily and yearly fluctuations of the forces surrounding us, as taught according to meteorology. Then, again, by examining the formation of the crust of the earth, we find various strata of very different kinds of material, which must have been formed at different ages and under very different external or surrounding conditions. So here, geology teaches a fluctuation of physical forces extending through ages. Astronomy also yields further evidence of this variation through astronomic periods. Now, these changes in the inorganic forces which influence the medium or environment of organisms, affect not only visibly, but also invisibly, the instable homogenous matter of which organisms are composed.—*Thomas Gaddes.*

The Thoroughness of Some Writers.—W. D. Howells says: "My working hours are from 9 A. M. to 1 P. M. I dine at 2 P. M., and am a man of leisure for the rest of the day. I average about twelve half sheets each morning. One of them would make about twenty lines of nonpareil. I do a great deal of revising, changing words, making elisions, insertions, etc. I think the workmanship of 'A Foregone Conclusion' is better than that of my other books." How few who write for the press are at such pains-taking. And yet is it not due both to our own reputation, and to the entertainment and profit of the readers? What is worth writing at all is worth writing just as well as we can. Instead of this pains taking, some writers send their thoughts to our newspapers and magazines in such a crude condition that it is a great labor for the editor to prepare their manuscript for publication. And not always because they cannot do better; they are too lazy to properly revise, condense, and make clear and precise what they write.

Sylonite ivory is a material which has all the good qualities of ivory, and so closely resembling it that experts have been deceived; the rich, mellow color, and the veins or grain of elephant ivory being reproduced. Its tenacity, durability and elasticity makes it invaluable as a material from which almost every article of use or ornament may be made. It has all the advantages of other plastic materials, being easily moulded or formed into any desired shape, with the far reaching improvement—the exact appearance of ivory. It is manufactured by the American Zolonite Company, 325 Broadway, New York.

INTERNAL USE OF HOT WATER.

The number of invalids, semi-invalids, and those in fair health who sip hot water in the morning of each day, is astonishingly large. The habit has become suddenly fashionable; and if we had no worse fashions to complain of, the world would be vastly improved. Still, however beneficial the free employment of hot water may be to some, it is not an agent which can be indiscreetly used without harmful effects. The employment of hot water for internal use originated in this country; and so eminent a medical authority as the London *Lancet* speaks of it as a "valuable American contribution to medicine." Dr. Salisbury, of Cleveland, claims to have been the first to suggest its use, and it is probable that this claim is well founded. Hot water is at present used very much at random, and but little is popularly known regarding the proper and safe methods of its employment. The questions relating to the proper times of administration, the number of ounces to be swallowed, (both at meals and in the intervals between) and the temperature, are very important, and should be well considered. The therapeutical uses of hot water may be varied; but it would seem that its beneficial employment is pretty well established in those diseases arising from unhealthy alimentation. In these affections the stomach and bowels become distended and obstructed by the abnormal acetic, butyric, hydrosulphuric, lactic, and saccharic acid fermentations; and the idea is to wash away these offending matters, and thus aid in introducing normal functional action. Cold water is in most cases inadmissible, as it is apt to produce distress in sensitive stomachs. Hot water is well borne in most cases; but it must not be lukewarm; it must be hot. And here is a distinction it is well to observe.

Tepid water, if taken in considerable quantities, will sometimes produce vomiting; but if the water be raised to a temperature of from 100° to 150° degrees Fahrenheit, it produces downward movements of the bowels instead of upward. Tea as drunk by dyspeptic tea-drinkers is preferred at a temperature of about 120° Fahrenheit, and this decoction, at this temperature affords great relief to persons of weak stomachs. The demand by dyspeptics for tea, "hot and weak," is founded on observation that in this form it affords genuine relief. If the tea-leaves were left out altogether, the agreeable relief would follow from the use of the hot water with a little milk and sugar added. By hot water is meant water which is so warm that it can only be sipped slowly, and not be poured into the stomach as a draught. In the absence of a thermometer the proper temperature may be ascertained by the effect upon the tongue and fauces; it must not be "scalding hot," but so warm as to be swallowed without inconvenience or danger.

As regards quantity, no fixed rule can be given. Perhaps half a pint may be regarded as a minimum, and a pint and a half a maximum

quantity to be taken at one time. The object being mainly to wash the alimentary canal, carrying down the slime, yeast, and bile through normal channels. A few ounces can have but little effect in accomplishing such results. It is assumed that the liver and kidneys are greatly influenced by the hot water treatment, and that they are washed as well as the intestinal canal, the bile being eliminated through the bowels, and not through the blood by way of the kidneys.

The best time to use hot water is probably about one hour before meals, and, in some instances, half an hour before retiring to bed. The most important time of all, however, is the hour before breakfast in the morning. The digestive apparatus of the weak and morbid needs cleansing after a night of rest, or unrest, as in the case of invalids. A half or whole pint of hot water taken upon getting out of bed in the morning, will in most instances soon break up morbid conditions of the bowels; and natural peristaltic motions will be established, even in obstinate cases.

It may be necessary in some instances to medicate the water slightly, and thus improve its taste and add to its activity. A few drops of tincture of ginger, a half teaspoonful of tartrate of soda, or sulphate of magnesia, are unobjectionable adjuncts to the water, and, indeed, sometimes are necessary. The practice of using hot water may continue so long as it is found to give relief, and so long as it contributes to the establishment of "inward cleanliness," and consequent robust health. Those in sound condition may use hot water with advantage occasionally throughout life.

The therapeutical influence of water, hot and cold, has been but imperfectly understood by physicians; and this is not strange, considering the circumstances under which it has been employed. It has been supposed, when patients were sent to famous springs for treatment, that it was the "salts" in the water to which the cures were due; but now, observing medical men look upon the use of "salts" with distrust, and these take at least a secondary place as curative agents in their minds. The small quantities of mineral ingredients in some mineral springs, so called, render their waters in many cases unobjectionable; but there are other famous springs, which, as was stated in the last number of *Science News*, are decidedly objectionable.

Pure water is what is needed, and this can be obtained at any clear boiling spring in granitic regions or sections of country. The waters of wells in the country, and aqueduct water in many cities, are pure enough for domestic or medicinal use. The writer (Editor of the *News*) has been compelled to nurse a defective physical organization for nearly two-thirds of a century; and among the means employed to arrest abnormal waste of tissue, or remove functional obstructions, has been the use of water, hot and cold. Hot water has been used for

many years according to methods alluded to in this brief paper, and he can attest the importance of the remedy. Those with defective organizations need fewer drugs, plenty of pure water, pure air, and suitable, properly cooked foods.—*Boston Journal of Chemistry.*

POPULAR FALLACIES IN REGARD TO VENTILATION.

DR. CHAS. R. DRYER.

The first and great popular fallacy in regard to ventilation is that it needs no special attention.

This is a more serious error among the well-to-do than among the poorer classes, inasmuch as the houses of the former are more nearly air-tight. With solid brick walls, double-sashed windows, weather-stripped doors, and a base-burning coal stove, the exclusion of pure air is carried to the utmost extent. This condition is happily somewhat relieved by the use of open coal grates. But how many fine houses does the physician enter without noticing the close, foul odor, and the stifling air which comes from over-heating and poor ventilation? In such rooms he finds nervous, headachy women and pale, irritable children, suffering from colds the winter through. Such families need judicious instruction that respired air contains one of the most virulent poisons known, and that dry and over-heated air is debilitating and irritating, leaving the mucous membrane sensitive to be inflamed by every breath of the natural atmosphere. Some are so suicidal as to draw into their living rooms, through the furnace heater, the foul air of the cellar.

The second popular fallacy is that the poison of respired air is carbonic acid.

This is an example of superstition at the "survival" in science of an idea long after it has been proved false. It is perpetuated in school text books, and popular treatises innumerable. Indeed, correctness of statement upon the subject is the rare exception; gross error the rule.

Carbonic acid gas is no more poisonous than water; animals immersed in it die just as they do if immersed in water, and for the same reason, viz., want of oxygen. Birds have been made to live in an atmosphere containing 35 per cent of pure carbonic acid and about an equal per cent of oxygen. Yet when the carbonic acid of *respired air* rises to one per cent that air is a very dangerous poison. The solution of this puzzle is that respired air contains a very small proportion of poisonous organic matter, which is constantly exhaled from even the healthiest lungs. Its exact nature has not been determined. It is the source of the foul odor so characteristic of badly ventilated rooms. The air from the exits of pipes of a crowded hall darkens sulphuric acid, decolorizes potassium permanganate, and causes water, or

a sponge saturated with it, to putrefy. This poisonous matter is produced in quantities proportionate to the amount of carbonic acid, hence the quantity of the latter is an indicator of the relative quantity of the former, and carbonic acid should never be allowed to accumulate in occupied rooms to the extent of seven-tenths of one per cent.

The third popular fallacy is that the most impure air accumulates near the floor of the room.

This false idea has probably arisen from the fact that carbonic acid is more than half as heavy again as air, and can be poured from one dish to another like water. Although this is true when both gases are at the same temperature, a very little difference of temperature is sufficient to reverse these conditions. Respired air issues from the nostrils at a temperature of nearly 100° Fahrenheit, and is lighter than the outer air at 70° or 80°. Again, the temperature of the body is nearly 100°, usually much above that of the surrounding air. This is sufficient to create an upward current rising from the body of every person in the room, just as the heated air rises above a hot stove. If to these influences be added the more powerful action of a stove, register, or other heating apparatus, it will be understood how the impure air rises and accumulates very rapidly near the ceiling. This can easily be proved by experiment, such as placing candles at various heights. The upper one will burn much more dimly than the lower. At the same time the cooler air from the floor moves toward the stove to enter it, or to join the current rising from it.

The fourth popular fallacy is that the outlet for impure air is best placed at the top of the room, and the inlet for pure air at the bottom.

This may seem a contradiction to the third fallacy, but it is not, for several reasons. An opening into a cold place at the top of the room is often not an outlet at all, but simply allows cold air to drop down into the room. If it be an outlet, it is very wasteful of heat. The air of the room is heated at some expense, and then turned out of doors as soon as possible. If the inlet be near the floor, there will be a cold draught upon the feet of the occupants of the room, and although such an arrangement may ventilate, it will be attended with such disadvantages as to render it highly objectionable. Wherever possible, there should be an outlet near the floor into a heated flue, in which the upward draught is sufficient to constantly draw the cooler air off the floor. An open fire flue is the most efficient outlet that can be devised. Instead of that, a direct draught stove in which a door above the fire may be opened, answers the purpose admirably. The inlet may be for pure heated air through a register near the door on the opposite side of the room from the outlet, or for pure cold air by an opening directed upward behind the stove, and above the heads of the occupants of the room. Thus all cold draughts will be avoided; the

pure cold air will mingle immediately with the impure air near the ceiling, and the room will be equably and economically warmed and efficiently ventilated. June air may be had in January, and the children will be as merry and rosy as the street children, who have nothing but oxygen to make them merry. And, by the by, it would be much better for the rich to turn their children into the streets than confine them in such impure air as is often found in our "best" houses.

THE CLIMATES OF EUROPE AND AMERICA.

BY FELIX L. OSWALD.

The sufferings of the so-called northern countries of Europe are only playful allusions to the experiences of our own Northern States. When Fahrenheit constructed his thermometer he fixed his *zero* at the point which he believed to be the lower extreme of any possible temperature outside of a chemical refrigerator. In Antwerp 20° above zero depopulates the streets; 10° mobilizes the Berlin relief committees; and zero itself would make the Copenhageners stare. But in Duluth, Minnesota, 45° *below* zero is nothing unusual; and three years ago a series of "cold waves" acquainted the New-Yorkers with —8°, —10°, and —14°. The longevity of the Scotch Highlanders would be incompatible with such possibilities. Heinrich Heine has a story of a Greenlander who came to St. Petersburg to "enjoy the benefit of the mild climate," and persons who have found that barbarous frosts do not agree with their constitution would commit a similar mistake by migrating from Northern to Southern New York. For such persons Southern Pennsylvania would be about the Ultima Thule of a really endurable climate. That would be the latitude of southernmost Italy, but its weather-conditions would be only those of Northern Austria. Spring opens in Prague about as early as in Philadelphia; Vienna and Paris correspond to Washington, Geneva to Richmond, Turin to Nashville, Rome to Montgomery, Athens to Austin or Mobile. The boasted climate of Berne, now the Medina of European consumptives, might find its equivalent in Asheville, North Carolina, in that marvellous high yet dry and mild upland valley enclosed between the Blue Ridge and the Western Alleghanies, like Cœle-Syria between the parallel ranges of the Libanus. For Naples we have no analogue on the Atlantic slope; our east coast is cursed with swamps; but in California, with its Italian winters and its cloudless summers, the sublime scenery of Santa Barbara, Bodega Bay, and Point Carmel invites invalids to see and live.—*Lippincott's Magazine.*

"*Method*," said Cecil, (afterward Lord Burleigh), "is like packing things in a box; a good packer will get in half as much again as a bad one." Cecil's dispatch of business was extraordinary, his maxim being, "the shortest way to do many things is to do only one thing at once."

ALCOHOL AND HEALTH.

It is a conceded fact in physiology that alcohol in every shape impedes the digestion of albuminous portions of our food, makes no flesh or muscle, and gives no strength. The prize fighter or champion oarsman never touches liquor while in training for a contest, because he wants strength and endurance, and alcohol brings neither. The advocates of liquor point triumphantly to a ruddy-faced drinker with apparently well developed muscle and well filled skin, but such fat is disease; he has no agility of limb, no activity of body, there is no power of endurance in his arm, for he knows that a lean stripling of a plow boy of twenty who was never drunk in his life, "could whip him all to pieces in five minutes." It is the sherest nonsense to argue that liquor strengthens the body in any way. It does exactly the reverse for every one who uses it.—*Health and Home.*

HOUSEKEEPERS' MEASURES.

A great deal of poor food, especially cakes and other "recipe" preparations, is due to inaccuracy in measuring. "A pinch" of salt or pepper, or other condiment, may mean four times as much in one hand as in another—quite enough to entirely change the quality and flavor. Teaspoons, teacups, and coffeecups now vary greatly. The old standard teacup held just half a pint, or four to the quart, and the coffeecup three-quarters of a pint, or two and two-third cups to a quart; but on testing several cups now in use we find that of one pattern of teacups three fill a quart; of another it takes five, and of another six; while of coffeecups, two of one set fill a quart, and of another it takes nearly four.

It would be a simple matter and a great convenience for any housekeeper to keep always at hand accurate measuring cups of earthenware, tin or glass. Let a teacupful or a tumblerful always mean exactly half a pint, and keep a cup of that size. Or use a small tin cup—one with a side handle being preferable. We have now a glass quart measure on the market admirably adapted for this purpose, on the side of which are marked ounces, gills, half pint, or pint; or one-quarter, one-half, three-quarter and whole pound of water, etc.

Spoon-measuring is more important, especially in giving medicines. The top is so broad, and it is so difficult to know when a spoon is even full, that a "teaspoonful dose" of any medicine, or of a flavoring extract in cooking, may be double what is prescribed. The standard teaspoon, evenly full, holds one-eighth of a fluid ounce, or 128 to a pint; and a standard tablespoon just three times as much, or 42 to the pint. Sixty drops of water equal one teaspoonful, but drops of different liquids vary in size. Every family should have a "Minim glass"

(minim means drop). This is a little glass tube or cup having a broad base and a lip for pouring out the liquids. There are marks on the side and figures 10, 20, 30, 40, 50, 60, for so many drops—the figure 60 making just a standard teaspoonful. With this at hand one is always able to measure off exact teaspoonfuls of anything. In giving medicine, such regularity of doses may mean recovery of health. These glasses can be bought at most druggists for 15 to 30 cents each.—*American Agriculturist.*

SALOONATICS.

BY AUSTIN BIERBOWER.

There are lunatics and there are saloonatics. Anciently, the moon was thought to cause madness, and it was called lunacy (from luna, the moon). Now the saloons are the principal cause, and it might be appropriately called saloonacy. Nine out of every ten men who lose their reason are to-day saloonatics. Sometimes the saloonacy lasts only a few hours or days, during a spree, there being long lucid intervals. In other cases it is confirmed and incurable, leaving the victim without will or control of his powers for any practical use. Sometimes the saloonacy is of a mild form, quiet and inoffensive, while at others it is violent and raging, as in delirium tremens. The sight of the saloon affects the saloonatics much as the sight of the moon anciently affected the lunatics, causing an agitation and return of the more violent symptoms. Even the thought of the saloons has this effect, and saloonatics must keep their minds as well as their eyes off the saloons. We have now saloonatic asylums where saloonacy is treated, its first forms being called drunkenness and inebriety, and its later ones *mania a potu* and insanity. The hereditary forms are imbecility and idiocy. The cure for the earlier forms of saloonacy is simply absence from the saloons, when it cures itself, the saloon being a constant necessity for incipient saloonacy; for the later forms only death is a cure, although hell is supposed to continue the treatment in vain forever afterward.

Whatever may be the truth about the moon effecting insanity, there is no doubt about the saloons effecting it. They are responsible, more than all other causes combined, for its prevalency; and so we think the new term "saloonacy is particularly appropriate, and one much needed to clear up the muddles into which even sane minds have fallen on the subject of insanity. Saloonacy explains most crimes. It may successfully be pleaded in almost every trial. It accounts for, if it does not excuse, nearly every murder. It works as an explanation of smaller crimes also, even to misdemeanors. Saloonacy is chargeable with nearly all wife-beating, brawls, and disorderly conduct. It induces to poverty, vagrancy, and theft. It is in all its forms and de-

grees a parent of crime, and can beget at any age a crime on the body of any sin. Saloonacy knows not all its children, but, counting the bastard products of all its outrages, it fathers nearly all the inmates of our foundling hospitals, insane asylums, penitentiaries, and poor-houses. Saloonatics and saloonacy, in their various degrees of advancement, are found in nearly all crime and misery. Our politics is largely affected by saloonacy; our laws are tainted with it. Saloonatics fill our Legislatures. Our ward meetings might be mistaken for saloonatic asylums. Saloonacy has attacked our trades-unions, and crept into our social customs. Balls and summer resorts are patronized largely by saloonatics. Saloonacy is common in clubs, and saloonatics make New Year calls. Saloonacy has even crept into the professions, and attacked our groceries and drug stores. It is, in short, the universal form of modern madness in all its degrees and variations of weakness, criminality and foolishness.

Digestion, Dr. John Wilde says, is popularly supposed to be a process in which the stomach only is engaged, and hence the disturbances which can be referred to that organ are believed to be the only symptoms of indigestion; but it will be seen in what follows, that this is a very limited view of the subject. Digestion really commences in the mouth, but it is continued throughout the whole alimentary canal, including the stomach and small and large intestines. Each part of this long tract, which is from twenty-five to thirty feet long, has its own functions and digestive processes, and derangement of any of these may cause symptoms which, though various in kind, are those of indigestion.

It is therefore necessary at the outset, that the unprofessional reader should get rid of the idea that the stomach is a bag into which the food is introduced, and got rid of in some mysterious manner, the undigested portions being carried into the bowels and ultimately rejected. Such a simple form of digestion does, indeed, prevail in some of the lower animals, as in the polyps, but in man and the higher animals it is a much more complex operation, and includes a variety of distinct processes, chemical, mechanical and vital.

Men who succeed in any calling, combine several very important elements of character. Faith and talent and ambition and energy, will win wonders of success. Perhaps the great difference among men of all callings, is energy of character, or want of it. It takes nerve, vim, perseverance, patient continuance in well doing, to win a great prize. And the young man who goes into a profession without this pluck and force, will not earn salt to his porridge.